

IN THE CLAIMS:

1. (Currently Amended) A reception apparatus which receives scrambled content, and reproduces the scrambled content in a normal reproduction mode and in a particular reproduction mode, comprising:

reception means for receiving the scrambled content and storage information,

5 wherein (a) the scrambled content is a content which has been scrambled so that a predetermined unit of scrambled content, which is a portion of the scrambled content, is descrambled using a descrambling key corresponding to the predetermined unit of scrambled content, and at least one piece of storage information in which a list of descrambling keys including all descrambling keys to be used for descrambling the scrambled content and descrambling key identifiers that identify  
10 the descrambling keys respectively and are used to identify a descrambling key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode that includes a fast forward mode is embedded, in units of frames so that the frames can be descrambled using descrambling keys that respectively correspond to each of the frames, and (b) the storage information includes a list of the  
15 descrambling keys which includes all of the descrambling keys;

from the list of descrambling keys, a first group of descrambling keys being extracted in the normal reproduction mode, and a second group of descrambling keys being extracted in the particular reproduction mode;

storage means for storing the received scrambled content and the storage  
20 information;

list extraction means for extracting the list of descrambling keys from the stored storage information;

descramble processing means for descrambling the scrambled content; and (a) extracting the predetermined unit of scrambled content from the stored scrambled content sequentially if in the normal reproduction mode to obtain a first group of scrambled content made of a plurality of portions of the scrambled content, or to obtain a second group of scramble content made of a plurality of portions of the scrambled content in an order different from the normal reproduction mode if in the particular reproduction mode (b) i) in the normal reproduction mode, specifying and extracting, using the descrambling key identifiers, the first group of descrambling keys and descrambling each portion of the scrambled content in the first group of scrambled content with use of a corresponding one of the first group of descrambling keys thereby obtaining a first group of content made of a plurality of portions of content, and ii) in the particular reproduction mode, specifying and extracting, using the descrambling key identifiers, the second group of descrambling keys and descrambling each portion of the scramble content in the second group of scrambled content with use of a corresponding one of the second group of descrambling keys thereby obtaining a second group of content made of a plurality of portions of content; and

reproduction means for reproducing the descrambled content, wherein first group of content in the normal reproduction mode and reproducing the second group of content in the particular reproduction mode

the normal reproduction mode is a mode which includes a play mode and in which all of the frames are descrambled and reproduced sequentially.

the particular reproduction mode is a mode which includes a fast-play mode and  
in which only predetermined frames selectively extracted from less than all of the frames are  
45 descrambled and reproduced, and

(a) in the normal reproduction mode,

said list extraction means extracts all descrambling keys from the list of  
descrambling keys,

said descramble processing means descrambles each frame of all of the frames  
50 using each of the extracted descrambling keys, and

said reproduction means reproduces all of the frames descrambled by said  
descrambling means, and

(b) in the particular reproduction mode,

said list extraction means selectively extracts descrambling keys corresponding to  
55 the predetermined frames from the list of descrambling keys,

said descramble processing means descrambles each of the predetermined frames  
using the extracted descrambling keys, and

said reproduction means reproduces only the predetermined frames descrambled  
by said descrambling means so that the content is reproduced in a different speed than a speed of  
60 reproduction of the normal reproduction mode.

2. (Previously Presented) The reception apparatus of Claim 1, wherein

the reception means receives one piece of storage information in which the list of  
descrambling keys is embedded,

the storage means stores the received scrambled content and the one piece of  
5 storage information, and

the list extraction means extracts the list of descrambling keys from the stored one  
piece of storage information.

3. (Previously Presented) The reception apparatus of Claim 1, wherein

the reception means receives a plurality of pieces of storage information in each  
piece of which a divided portion of the list of descrambling keys is embedded,

the storage means stores the received scrambled content and the plurality of  
5 pieces of storage information, and

the list extraction means extracts the list of descrambling keys from the stored  
plurality of pieces of storage information.

4. (Previously Presented) The reception apparatus of Claim 1, wherein

the reception means sequentially receives a transport stream (TS) packet including  
the predetermined unit of scrambled content,

the storage means sequentially stores the received TS packet, wherein  
5 the descramble processing means includes:

scrambled content extraction means for extracting the predetermined unit of  
scrambled content from one of the TS packets stored in the storage means, and counting the  
ordinal position of the TS packet from the leading TS packet;

descrambling key extraction means for extracting a descrambling key from the list  
10 of descrambling keys, based on the counted ordinal position; and

descrambling means for descrambling the extracted predetermined unit of scrambled content using the extracted descrambling key.

5. (Previously Presented) The reception apparatus of Claim 1, wherein the reception means receives at least one storage Entitlement Control Message (ECM) as the at least one piece of storage information, the list of descrambling keys being embedded in a portion to be encoded in the main body of the ECM,

5 the storage means stores the received storage ECMs, and the list extraction means interprets the stored storage ECMs to extract the list of descrambling keys.

6. (Original) The reception apparatus of Claim 5, wherein the reception means receives the storage ECMs including identifying information for distinguishing the storage ECMs from another type of ECM.

7. (Original) The reception apparatus of Claim 5, wherein the reception means receives the storage ECMs at a time.

8. (Previously Presented) The reception apparatus of Claim 1, wherein the reception means sequentially receives a TS packet including (a) the predetermined unit of scrambled content and (b) packet specifying information for specifying an unscrambled TS packet, and

5 the storage means sequentially stores the received TS packet, wherein the descramble processing means includes:

scrambled content extraction means for extracting the predetermined unit of scrambled content and the packet specifying information from one of the TS packets stored in the storage means;

10                    descrambling key extraction means for extracting a descrambling key from the list of descrambling keys, based on the extracted packet specifying information; and

                    descrambling means for descrambling the extracted predetermined unit of scrambled content using the extracted descrambling key.

9.       (Previously Presented) The reception apparatus of Claim 8, wherein

                    the packet specifying information is one of Continuity Counter (CC), the number of TS packets, a cumulative amount of data, a relative reproduction time, and a scrambling key identifier,

5                   the scrambled content extraction means extracts, as the packet specifying information, one of the Continuity Counter (CC), the number of TS packets, the cumulative amount of data, the relative reproduction time, and the scrambling key identifier, and

                    the descrambling key extraction means performs a predetermined operation to the extracted information as the packet identifying information to generate a descrambling key  
10   identifier, and extracts a descrambling key from the list of descrambling keys based on the descrambling key identifier.

10.   (Previously Presented) The reception apparatus of Claim 1, wherein

                    the reception means sequentially receives a TS packet including (a) the predetermined unit of scrambled content and (b) unscrambled I picture information, wherein the

I picture information indicates whether the TS packet corresponding to the information consists  
5 of a portion of an I picture/an I picture or not, and

the storage means sequentially stores the received TS packet, wherein

the descramble processing means includes:

scrambled content extraction means for, when performing particular reproduction  
processes, extracting the predetermined unit of scrambled content and I picture information from  
10 one of the TS packets stored in the storage means;

I picture judgment means for judging whether the extracted predetermined unit of  
scrambled content consists of a portion of an I picture/an I picture or not, based on the extracted I  
picture information;

descrambling key extraction means for extracting a descrambling key from the list  
15 of descrambling keys, only when the extracted predetermined unit of scrambled content consists  
of a portion of an I picture/an I picture; and

descrambling means for descrambling the extracted predetermined unit of  
scrambled content using the extracted descrambling key.

11. (Previously Presented) The reception apparatus of Claim 1 further managing  
contract information and consisting of a security module whose portion does not effectively  
function if a contract has not been made, and other modules, the reception apparatus further  
comprising:

5 list holding means for holding the list of descrambling keys extracted by the list  
extraction means,

wherein the list extraction means and the list holding means are provided within the security module.

12. (Currently Amended) A reception apparatus which receives and reproduces scrambled content in a normal reproduction mode and in a particular reproduction mode, comprising:

reception means for receiving the scrambled content, wherein the scrambled  
5 content is ~~scrambled so that a predetermined unit of scrambled content, which is a portion of the scrambled content, is descrambled using a descrambling key corresponding to the predetermined unit of scrambled content, and a descrambling key is attached to each predetermined unit of a~~ content which has been scrambled in units of frames so that the frames can be descrambled using descrambling keys that respectively correspond to each of the frames, and the descrambling keys  
10 are attached to the frames of scrambled content;

storage means for storing the received scrambled content;

list generation means for, when/after storing the received scrambled content by said storage means, generating a list of descrambling keys ~~including all descrambling keys to be used for descrambling the scrambled content and descrambling key identifiers that identify the~~  
15 ~~descrambling keys respectively and are used to identify a descrambling key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode that includes a fast forward mode, based on the descrambling key attached to each predetermined unit of~~ which includes all of the descrambling keys attached to each frame of the scrambled content,



from the list of descrambling keys, a first group of descrambling keys being extracted in the normal reproduction mode, and a second group of descrambling keys being extracted in the particular reproduction mode;

list extraction means for extracting the list of descrambling keys from the stored storage information;

descramble processing means for descrambling the scrambled content; (a) ~~extracting the predetermined unit of scrambled content from the stored scrambled content sequentially if in the normal reproduction mode to obtain a first group of scrambled content made of a plurality of portions of the scrambled content, or to obtain a second group of scramble content made of a plurality of portions of the scrambled content in an order different from the~~ normal reproduction mode ~~if in the particular reproduction mode (b) i) in the normal reproduction mode, specifying and extracting, using the descrambling key identifiers, the first group of descrambling keys and descrambling each portion of the scrambled content in the first group of scrambled content with use of a corresponding one of the first group of descrambling keys thereby obtaining a first group of content made of a plurality of portions of content, and ii)~~ in the particular reproduction mode, specifying and extracting, using the descrambling key identifiers, the second group of descrambling keys and descrambling each portion of the scramble content in the second group of scrambled content with use of a corresponding one of the second group of descrambling keys thereby obtaining a second group of content made of a plurality of portions of content; and

reproduction means for reproducing the descrambled content, wherein first group of content in the normal reproduction mode and reproducing the second group of content in the particular reproduction.

the normal reproduction mode is a mode which includes a play mode and in which all of the frames are descrambled and reproduced sequentially,

45 the particular reproduction mode is a mode which includes a fast-play mode and in which only predetermined frames selectively extracted from less than all of the frames are descrambled and reproduced, and

(a) in the normal reproduction mode,

said list extraction means extracts all descrambling keys from the list of  
50 descrambling keys,

said descramble processing means descrambles each frame of all of the frames using each of the extracted descrambling keys, and

said reproduction means reproduces all of the frames descrambled by said descrambling means, and

55 (b) in the particular reproduction mode,

said list extraction means selectively extracts descrambling keys corresponding to the predetermined frames from the list of descrambling keys,

said descramble processing means descrambles each of the predetermined frames using the extracted descrambling keys, and said reproduction means reproduces the

60 predetermined frames descrambled by said descrambling means.

13. (Previously Presented) The reception apparatus of Claim 12, wherein

the reception means sequentially receives a TS packet including (a) the predetermined unit of scrambled content, and (b) auxiliary information including a descrambling key and information for associating the descrambling key with scrambled content,

5 the storage means sequentially stores the received TS packet, and  
the list generation means generates the list of descrambling keys, based on the  
auxiliary information.

14. (Previously Presented) The reception apparatus of Claim 13, wherein  
the TS packet includes an ECM, the auxiliary information being embedded in a  
portion to be encoded in a main body of the ECM, and  
the list generation means extracts the auxiliary information embedded in the  
5 ECM, and generates the list of descrambling keys based on the auxiliary information.

15. (Currently Amended) A broadcast apparatus which scrambles content and  
broadcasts the scrambled content to a reception apparatus, the broadcast apparatus comprising:  
acquisition means for acquiring content to be scrambled and a plurality of  
descrambling keys;

5 scramble processing means for scrambling a predetermined unit of content out of  
~~the acquired content so that the predetermined unit of scrambled content is descrambled using a~~  
~~descrambling key different for each predetermined unit or each set of a plurality of~~  
~~predetermined units~~ that selects one of the descrambling keys for each frame of the content, and  
scrambles the each frame so that the frame can be descrambled by using the descrambling key  
10 selected for the frame;

attaching means for attaching auxiliary information, which is used to generate a  
list of the descrambling keys, wherein the auxiliary information includes (a) information for  
identifying each of the frames and (b) each of the descrambling keys selected for the frame; and  
~~to the predetermined unit of scrambled content, the auxiliary information consisting of (a)~~

15 information for identifying the scrambled content and (b) a descrambling key corresponding to  
the content, and used for having the reception apparatus generate a list of descrambling keys  
including the descrambling keys and descrambling key identifiers that identify the descrambling  
keys respectively and are used to identify a descrambling key corresponding to the  
predetermined unit of scrambled content in both a normal reproduction mode that includes a play  
20 mode, and a particular reproduction mode that includes a fast-forward mode; and

from the list of descrambling keys, a first group of descrambling keys being  
extracted in the normal reproduction mode, and a second group of descrambling keys being  
extracted in the particular reproduction mode

broadcast means for broadcasting the scrambled content including the plurality of  
25 scrambled frames to which the auxiliary information is added has been attached.

16. (Original) The broadcast apparatus of Claim 15, wherein  
the attaching means embeds the auxiliary information in a portion to be encoded  
in a main body of an ECM and attaches the ECM to the predetermined unit of scrambled content.

17. (Currently Amended) A broadcast apparatus which scrambles content and  
broadcasts the scrambled content to a reception apparatus, the broadcast apparatus comprising:

acquisition means for acquiring content to be scrambled and a plurality of  
descrambling keys;

5 scramble processing means that selects one of the descrambling keys for each  
frame of the content, and scrambles the each frame so that the frame can be descrambled by  
using the descrambling key selected for the frame;

list generation means for generating a list of descrambling keys which includes all  
of the descrambling keys selected by the scramble processing means including the descrambling  
10 keys and descrambling key identifiers that identify the descrambling keys respectively and are  
used to identify a descrambling key corresponding to the predetermined unit of scrambled  
content in both a normal reproduction mode that includes a play mode, and a particular  
reproduction mode that includes a fast forward mode;

from the list of descrambling keys, a first group of descrambling keys being  
15 extracted in the normal reproduction mode, and a second group of descrambling keys being  
extracted in the particular reproduction mode;

embedding means for embedding the list of descrambling keys in at least one  
piece of predetermined information to generate at least one piece of storage information; and

scramble processing means for scrambling a predetermined unit of content out of  
20 the acquired content so that the predetermined unit of scrambled content is descrambled using a  
descrambling key different for each predetermined unit or each set of a plurality of  
predetermined units; and

broadcast means for broadcasting the generated storage information and the  
scrambled content.

18. (Previously Presented) The broadcast apparatus of Claim 17, wherein

the embedding means embeds the list of descrambling keys in one piece of  
predetermined information to generate one piece of storage information, and

the broadcasting means broadcasts the generated one piece of information and the  
5 scrambled content.

19. (Previously Presented) The broadcast apparatus of Claim 17, wherein  
the embedding means embeds a divided portion of the list of descrambling keys in  
each of a plurality of pieces of predetermined information to generate a plurality of pieces of  
storage information, and

5 the broadcasting means broadcasts the generated plurality of pieces of storage  
information and the scrambled content.

20. (Previously Presented) The broadcast apparatus of Claim 17, wherein  
the embedding means embeds the list of descrambling keys in a portion to be  
encoded in a main body of at least one ECM to generate at least one piece of storage  
information.

21. (Original) The broadcast apparatus of Claim 17, wherein  
the broadcast means broadcasts one set of the storage information while all the  
scrambled content corresponding to the storage information are broadcast once.

22. (Currently Amended) A program used for a reception apparatus which receives  
and reproduces scrambled content, the program causing the reception apparatus to perform: being  
stored on a computer-readable medium and having the reception apparatus conduct the following  
steps of

5 a reception step for receiving the scrambled content and storage information,  
wherein (a) the scrambled content is scrambled so that a predetermined unit of scrambled  
content, which is a portion of the scrambled content, is descrambled using a descrambling key  
corresponding to the predetermined unit of scrambled content, and at least one piece of storage

information in which a list of descrambling keys including all descrambling keys to be used for  
10 descrambling the scrambled content and descrambling key identifiers that identify the  
descrambling keys respectively and are used to identify a descrambling key corresponding to the  
predetermined unit of scrambled content in both a normal reproduction mode that includes a play  
mode, and a particular reproduction mode that includes a fast forward mode is embedded; a  
content which has been scrambled in units of frames so that the frames can be descrambled using  
15 descrambling keys that respectively correspond to each of the frames, and (b) the storage  
information includes a list of the descrambling keys which includes all of the descrambling keys;

~~from the list of descrambling keys, a first group of descrambling keys being~~  
~~extracted in the normal reproduction mode, and a second group of descrambling keys being~~  
~~extracted in the particular reproduction mode;~~

20 a storage step for storing the received scrambled content and the storage  
information;

a list extraction step for extracting the list of descrambling keys from the stored  
storage information;

a descramble processing step for descrambling the scrambled content; and (a)  
25 ~~extracting the predetermined unit of scrambled content from the stored scrambled content~~  
~~sequentially if in the normal reproduction mode to obtain a first group of scrambled content~~  
~~made of a plurality of portions of the scrambled content, or to obtain a second group of scramble~~  
~~content made of a plurality of portions of the scrambled content in an order different from the~~  
~~normal reproduction mode if in the particular reproduction mode (b) i) in the normal~~  
30 ~~reproduction mode, specifying and extracting, using the descrambling key identifiers, the first~~  
~~group of descrambling keys and descrambling each portion of the scrambled content in the first~~

group of scrambled content with use of a corresponding one of the first group of descrambling keys thereby obtaining a first group of content made of a plurality of portions of content, and ii) in the particular reproduction mode, specifying and extracting, using the descrambling key  
35 identifiers, the second group of descrambling keys and descrambling each portion of the scramble content in the second group of scrambled content with use of a corresponding one of the second group of descrambling keys thereby obtaining a second group of content made of a plurality of portions of content; and

a reproduction step for reproducing the descrambled content, wherein first group  
40 of content in the normal reproduction mode and reproducing the second group of content in the particular reproduction mode

the normal reproduction mode is a mode which includes play mode and in which all of the frames are descrambled and reproduced sequentially.

the particular reproduction mode is a mode which includes a fast-play mode and  
45 in which only predetermined frames selectively extracted from less than all of the frames are descrambled and reproduced, and

(a) in the normal reproduction mode,

said list extraction step extracts all descrambling keys from the list of descrambling keys,

50 said descramble processing step descrambles each frame of all of the frames using each of the extracted descrambling keys, and

said reproduction step reproduces the all of the frames descrambled by said descrambling means, and

(b) in the particular reproduction mode,



55            said list extraction step selectively extracts descrambling keys corresponding to  
the predetermined frames from the list of descrambling keys,  
said descramble processing step descrambles each of the predetermined frames  
using the extracted descrambling keys, and  
said reproduction means reproduces only the predetermined frames descrambled  
60 by said descrambling means so that the content is reproduced in a different speed than a speed of  
reproduction of the normal reproduction mode.

23. (Currently Amended) A program used for a reception apparatus which receives  
and reproduces scrambled content, the program causing the reception apparatus to perform being  
stored on a computer-readable medium and having the reception apparatus conduct the following  
steps of

5            a reception step for receiving the scrambled content, wherein the scrambled  
content is scrambled so that a predetermined unit of scrambled content, which is a portion of the  
scrambled content, is descrambled using a descrambling key corresponding to the predetermined  
unit of scrambled content, and a descrambling key is attached to each predetermined unit a  
content which has been scrambled in units of frames so that the frames can be descrambled using  
10 descrambling keys that respectively correspond to each of the frames, and the descrambling keys  
are attached to the frames of scrambled content;

            a storage step for storing the received scrambled content;

            a list generation step for, when/after storing the received scrambled content by  
said storage step, generating a list of descrambling keys including all descrambling keys to be  
15 used for descrambling the scrambled content and descrambling key identifiers that identify the

deserambing keys respectively and are used to identify a deserambing key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode that includes a fast forward mode, based on the deserambing key attached to each predetermined unit which includes all of the deserambing

20 keys attached to each frame of the scrambled content,

from the list of deserambing keys, a first group of deserambing keys being extracted in the normal reproduction mode, and a second group of deserambing keys being extracted in the particular reproduction mode;

a list extraction step for extracting the list of deserambing keys from the stored  
25 storage information;

a descramble processing step for descrambling the scrambled content; (a)  
extracting the predetermined unit of scrambled content from the stored scrambled content sequentially if in a normal reproduction mode to obtain a first group of scrambled content made of a plurality of portions of the scrambled content, or to obtain a second group of scramble  
30 content made of a plurality of portions of the scrambled content in an order different from the normal reproduction mode if in a particular reproduction mode (b) i) in the normal reproduction mode, specifying and extracting, using the deserambing key identifiers, the first group of deserambing keys and deserambing each portion of the scrambled content in the first group of scrambled content with use of a corresponding one of the first group of deserambing keys  
35 thereby obtaining a first group of content made of a plurality of portions of content, and ii) in the particular reproduction mode, specifying and extracting, using the deserambing key identifiers, the second group of deserambing keys and deserambing each portion of the scramble content in the second group of the scrambled content with use of a corresponding one of the second group

of descrambling keys thereby obtaining a second group of content made of a plurality of portions  
40 of content; and

a reproduction step for reproducing the descrambled content, wherein first group  
of content in the normal reproduction mode and reproducing the second group of content in the  
particular reproduction mode.

the normal reproduction mode is a mode which includes a play mode and in  
45 which all of the frames are descrambled and reproduced sequentially,

the particular reproduction mode is a mode which includes a fast-play mode and  
in which only predetermined frames selectively extracted from less than all of the frames are  
descrambled and reproduced, and

(a) in the normal reproduction mode,

50 said list extraction step extracts all descrambling keys from the list of  
descrambling keys,

said descramble processing step descrambles each frame of all of the frames using  
each of the extracted descrambling keys, and

said reproduction step reproduces all of the frames descrambled by said  
55 descrambling step, and

(b) in the particular reproduction mode,

said list extraction step selectively extracts descrambling keys corresponding to  
the predetermined frames from the list of descrambling keys,

said descramble processing step descrambles each of the predetermined frames  
60 using the extracted descrambling keys, and

said reproduction step reproduces the predetermined frames descrambled by said descrambling step at a speed of reproduction that is different than a speed of reproduction of the normal reproduction mode.

24. (Currently Amended) A program used for a broadcast apparatus which scrambles content and broadcasts the scrambled content to a reception apparatus, the program causing the broadcast apparatus to perform: being stored on a computer-readable medium and having the broadcast apparatus conduct the following steps of

5 an acquisition step for acquiring content to be scrambled and a plurality of descrambling keys;

a scramble processing step for scrambling a predetermined unit of content out of the acquired content so that the predetermined unit of scrambled content is descrambled using a descrambling key different for each predetermined unit or each set of a plurality of  
10 predetermined units selecting one of the descrambling keys for each frame of the content, and scrambling the each frame so that the frame can be descrambled by using the descrambling key selected for the frame;

an attaching step for attaching auxiliary information, to the predetermined unit of scrambled content, the auxiliary information consisting of (a) information for identifying the  
15 scrambled content and (b) a descrambling key corresponding to the content, and used for having the reception apparatus generate a list of descrambling keys including the descrambling keys and descrambling key identifiers that identify the descrambling keys respectively and are used to identify a descrambling key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode;

20 ~~and that includes a fast-forward mode, which is used to generate a list of the descrambling keys, wherein the auxiliary information includes (a) information for identifying each of the frames and (b) each of the descrambling keys selected for the frame; and~~

~~from the list of descrambling keys, a first group of descrambling keys being extracted in the normal reproduction mode, and a second group of descrambling keys being~~  
25 ~~extracted in the particular reproduction mode; and~~

~~a broadcast step for broadcasting the scrambled content to which the auxiliary information is added including the plurality of scrambled frames to which the auxiliary information has been attached.~~

25. (Currently Amended) A program used for a broadcast apparatus which scrambles content and broadcasts the scrambled content to a reception apparatus, the program ~~being stored on a computer-readable medium having the broadcast apparatus conduct the following steps of causing the broadcast apparatus to perform:~~

5 an acquisition step for acquiring content to be scrambled and a plurality of descrambling keys;

~~a scramble processing step for selecting one of the descrambling keys for each frame of the content, and scrambling the each frame so that the frame can be descrambled by using the descrambling key selected for the frame;~~

10 a list generation step for generating a list of descrambling keys ~~including the descrambling keys and descrambling key identifiers that identify the descrambling keys respectively and are used to identify a descrambling key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a~~

~~particular reproduction mode that includes a fast forward mode, which includes all of the~~

15 ~~descrambling keys selected by the scramble processing step;~~

~~from the list of descrambling keys, a first group of descrambling keys being  
extracted in the normal reproduction mode, and a second group of descrambling keys being  
extracted in the particular reproduction mode;~~

20 ~~an embedding step for embedding the list of descrambling keys in at least one  
piece of predetermined information to generate at least one piece of storage information; and~~

~~a scramble processing step for scrambling a predetermined unit of content out of  
the acquired content so that the predetermined unit of scrambled content is descrambled using a  
descrambling key different for each predetermined unit or each set of a plurality of  
predetermined units; and~~

25 ~~a broadcast step for broadcasting the generated storage information and the  
scrambled content.~~

26. (Currently Amended) A ~~computer-readable~~ recording medium on which a  
program used for a reception apparatus which receives and reproduces scrambled content is  
recorded, the program has the reception apparatus conduct the following steps of causing the  
reception apparatus to perform:

5 ~~a reception step for receiving the scrambled content, wherein the scrambled  
content is scrambled so that a predetermined unit of scrambled content, which is a portion of the  
scrambled content, is descrambled using a descrambling key corresponding to the predetermined  
unit of scrambled content, and at least one piece of storage information in which a list of  
descrambling keys including all descrambling keys to be used for descrambling the scrambled~~

10 content and descrambling key identifiers that identify the descrambling keys respectively and are  
used to identify a descrambling key corresponding to the predetermined unit of scrambled  
content in both a normal reproduction mode that includes a fast forward mode, and a particular  
reproduction mode that includes a fast forward mode is embedded, and storage information,  
wherein (a) the scrambled content is a content which has been scrambled in units of frames so  
15 that the frames can be descrambled using descrambling keys that respectively correspond to each  
of the frames, and (b) the storage information includes a list of the descrambling keys which  
includes all of the descrambling keys;

from the list of descrambling keys, a first group of descrambling keys being  
extracted in the normal reproduction mode, and a second group of descrambling keys being  
20 extracted in the particular reproduction mode;

a storage step for storing the received scrambled content and the storage  
information;

a list extraction step for extracting the list of descrambling keys from the stored  
storage information;

25 a descramble processing step for descrambling the scrambled content; and (a)  
extracting the predetermined unit of scrambled content from the stored scrambled content  
sequentially if in the normal reproduction mode to obtain a first group of scrambled content  
made of a plurality of portions of the scrambled content, or to obtain a second group of scramble  
content made of a plurality of portions of the scrambled content in an order different from the  
30 normal reproduction mode if in the particular reproduction mode (b) i) in the normal  
reproduction mode, specifying and extracting, using the descrambling key identifiers, the first  
group of descrambling keys and descrambling each portion of the scrambled content in the first

group of scrambled content with use of a corresponding one of the first group of descrambling keys thereby obtaining a first group of content made of a plurality of portions of content, and ii) in the particular reproduction mode, specifying and extracting, using the descrambling key identifiers, the second group of descrambling keys and descrambling each portion of the scramble content in the second group of scrambled content with use of a corresponding one of the second group of descrambling keys thereby obtaining a second group of content made of a plurality of portions of content; and

a reproduction step for reproducing the descrambled content, wherein first group of content in the normal reproduction mode and reproducing the second group of content in the particular reproduction mode

the normal reproduction mode is a mode which includes a play mode and in which all of the frames are descrambled and reproduced sequentially,

the particular reproduction mode is a mode which includes a fast-play mode and in which only predetermined frames selectively extracted from less than all of the frames are descrambled and reproduced, and

(a) in the normal reproduction mode,

said list extraction step extracts all descrambling keys from the list of descrambling keys,

said descramble processing step descrambles each frame of all of the frames using each of the extracted descrambling keys, and

said reproduction step reproduces all of the frames descrambled by said descrambling means, and

(b) in the particular reproduction mode,



said list extraction step selectively extracts descrambling keys corresponding to the predetermined frames from the list of descrambling keys,

said descramble processing step descrambles each of the predetermined frames using the extracted descrambling keys, and

60 said reproduction means reproduces only the predetermined frames descrambled by said descrambling means so that the content is reproduced in a different speed than a speed of reproduction of the normal reproduction mode.

27. (Currently Amended) A ~~computer-readable~~ recording medium on which a program used for a reception apparatus which receives and reproduces scrambled content is recorded, the program ~~has the reception apparatus conduct the following steps of~~ causing the reception apparatus to perform:

5 a reception step for receiving the scrambled content, wherein the scrambled content is ~~scrambled so that a predetermined unit of scrambled content, which is a portion of the scrambled content, is descrambled using a descrambling key corresponding to the predetermined unit of scrambled content, and a descrambling key is attached to each predetermined unit a~~ content which has been scrambled in units of frames so that the frames can be descrambled using  
10 descrambling keys that respectively correspond to each of the frames, and the descrambling keys are attached to the frames of scrambled content;

a storage step for storing the received scrambled content;

a list generation step for, when/after storing the received scrambled content in the storage step, generating a list ~~including all descrambling keys to be used for descrambling the~~  
15 ~~scrambled content and descrambling key identifiers that identify the descrambling keys~~

respectively and are used to identify a descrambling key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode that includes a fast forward mode, based on the descrambling key attached to each predetermined unit of descrambling keys which includes all of the descrambling

20 keys attached to each frame of the scrambled content,

from the list of descrambling keys, a first group of descrambling keys being extracted in the normal reproduction mode, and a second group of descrambling keys being extracted in the particular reproduction mode;

25 a list extraction step for extracting the list of descrambling keys from the stored storage information;

a descramble processing step for descrambling the scrambled content; (a) extracting the predetermined unit of scrambled content from the stored scrambled content sequentially if in the normal reproduction mode to obtain a first group of scrambled content made of a plurality of portions of the scrambled content or to obtain a second group of scramble content made of a plurality of portions of the scrambled content, or in an order different from the normal reproduction mode if in the particular reproduction mode (b) i) in the normal reproduction mode, specifying and extracting, using the descrambling key identifiers, the first group of descrambling keys and descrambling each portion of the scrambled content in the first group of scrambled content with use of a corresponding one of the first group of descrambling  
30 keys thereby obtaining a first group of content made of a plurality of portions of content, and ii) in the particular reproduction mode, specifying and extracting, using the descrambling key identifiers, the second group of descrambling keys and descrambling each portion of the scramble content in the second group of scrambled content with use of a corresponding one of  
35

the second group of descrambling keys thereby obtaining a second group of content made of a plurality of portions of content; and

a reproduction step for reproducing the descrambled content, wherein first group of content in the normal reproduction mode and reproducing the second group of content in the particular reproduction mode.

the normal reproduction mode is a mode which includes a play mode and in which all of the frames are descrambled and reproduced sequentially,

the particular reproduction mode is a mode which includes a fast-play mode and in which only predetermined frames selectively extracted from less than all of the frames are descrambled and reproduced, and

(a) in the normal reproduction mode,

said list extraction step extracts all descrambling keys from the list of descrambling keys,

said descramble processing step descrambles each frame of all of the frames using each of the extracted descrambling keys, and

said reproduction step reproduces the all frames descrambled by said descrambling step, and

(b) in the particular reproduction mode,

said list extraction step selectively extracts descrambling keys corresponding to the predetermined frames from the list of descrambling keys,

said descramble processing step descrambles each of the predetermined frames using the extracted descrambling keys, and

said reproduction step reproduces the predetermined frames descrambled by said descrambling step at a speed of reproduction that is different than a speed of reproduction of the normal reproduction mode.

28. (Currently Amended) A ~~computer-readable~~ recording medium on which a program used for a broadcast apparatus which scrambles content and broadcasts the content to a reception apparatus is recorded, the program ~~has the broadcast apparatus conduct the following steps of~~ causing the broadcast apparatus to perform:

5           an acquisition step for acquiring content to be scrambled and a plurality of descrambling keys;

          a scramble processing step for ~~scrambling a predetermined unit of content out of the acquired content so that the predetermined unit of scrambled content is descrambled using a descrambling key different for each predetermined unit or each set of a plurality of~~  
10 ~~predetermined units~~ selecting one of the descrambling keys for each frame of the content, and scrambling the each frame so that the frame can be descrambled by using the descrambling key selected for the frame;

          an attaching step for attaching auxiliary information, ~~to the predetermined unit of scrambled content, the auxiliary information consisting of~~ which is used to generate a list of the  
15 descrambling keys, wherein the auxiliary information includes (a) information for identifying the scrambled content each of the frames and (b) [[a]] each of the descrambling key corresponding to the content, and used for having the reception apparatus generate a list of descrambling keys including the descrambling keys and descrambling key identifiers that identify the descrambling keys respectively and are used to identify a descrambling key corresponding to the

20 ~~predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode that includes a fast forward mode; keys selected for the frame; and~~

~~from the list of descrambling keys, a first group of descrambling keys being extracted in the normal reproduction mode, and a second group of descrambling keys being~~  
25 ~~extracted in the particular reproduction mode; and~~

~~a broadcast step for broadcasting the scrambled content including the plurality of scrambled frames to which the auxiliary information is added has been attached.~~

29. (Currently Amended) A ~~computer-readable~~ recording medium on which a program used for a broadcast apparatus which scrambles content and broadcasts the content to a reception apparatus is recorded, the program ~~has the broadcast apparatus conduct the following steps of~~ causing the broadcast apparatus to perform:

5 an acquisition step for acquiring content to be scrambled and a plurality of descrambling keys;

a scramble processing step for selecting one of the descrambling keys for each frame of the content, and scrambling the each frame so that the frame can be descrambled by using the descrambling key selected for the frame;

10 a list generation step for generating a list of descrambling keys ~~including the descrambling keys and descrambling key identifiers that identify the descrambling keys respectively and are used to identify a descrambling key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a~~

~~particular reproduction mode that includes a fast-forward mode, which includes all of the~~

15 ~~descrambling keys selected by the scramble processing means;~~

~~from the list of descrambling keys, a first group of descrambling keys being  
extracted in the normal reproduction mode, and a second group of descrambling keys being  
extracted in the particular reproduction mode;~~

20 ~~an embedding step for embedding the list of descrambling keys in at least one  
piece of predetermined information to generate at least one piece of storage information; and~~

~~a scramble processing step for scrambling a predetermined unit of content out of  
the acquired content so that the predetermined unit of scrambled content is descrambled using a  
descrambling key different for each predetermined unit or each set of a plurality of  
predetermined units; and~~

25 ~~a broadcast step for broadcasting the generated storage information and the  
scrambled content.~~

30. (Currently Amended) A computer-readable recording medium on which content  
to be broadcast to a reception apparatus is recorded, wherein the reception apparatus receives and  
stores scrambled content, and descrambles and reproduces the stored scrambled content, the  
content comprising:

5 ~~scrambled content which is scrambled so that a predetermined unit of scrambled  
content, which is a portion of the scrambled content, is descrambled using a descrambling key  
corresponding to the predetermined unit of content, and~~

~~a storage ECM, wherein a list of descrambling keys including all descrambling  
keys used for descrambling the scrambled content and descrambling key identifiers that identify~~

10 the descrambling keys respectively and are used to identify a descrambling key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode that includes a fast forward mode, descrambling key list is embedded in a portion to be encoded in a main body of at least one ECM,

15 ~~from the list of descrambling keys, a first group of descrambling keys being extracted in the normal reproduction mode, and a second group of descrambling keys being extracted in the particular reproduction mode.~~

wherein (i) in a normal reproduction mode which includes a play mode and in which a reproduction is performed by decrypting all the frames, the descrambling key list is used to identify all the descrambling keys that are respectively used to descramble all the frames, and  
20 (ii) in a particular reproduction mode which includes a fast-play mode and in which a reproduction is performed by decrypting part of the frames, the descrambling key list is used to identify descrambling keys that are used to descramble given frames.

wherein all the descrambling keys are extracted in sequence in the normal reproduction mode, and the descrambling keys corresponding to the given frames to be  
25 reproduced are selectively extracted in the particular reproduction mode.

31. (Currently Amended) A method for receiving and reproducing scrambled content, the method comprising ~~the steps of:~~

a reception step for receiving the scrambled content, ~~wherein the scrambled content is scrambled so that a predetermined unit of scrambled content, which is a portion of the~~  
5 ~~scrambled content, is descrambled using a descrambling key corresponding to the predetermined unit of scrambled content, and at least one piece of storage information in which a list of~~

descrambling keys including all descrambling keys to be used for descrambling the scrambled content and descrambling key identifiers that identify the descrambling keys respectively and are used to identify a descrambling key corresponding to the predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode is embedded that includes a fast forward mode, and storage information, wherein (a) the scrambled content is a content which has been scrambled in units of frames so that the frames can be descrambled using descrambling keys that respectively correspond to each of the frames, and (b) the storage information includes a list of the descrambling keys which includes all of the descrambling keys;

from the list of descrambling keys, a first group of descrambling keys being extracted in the normal reproduction mode, and a second group of descrambling keys being extracted in the particular reproduction mode;

a storage step for storing the received scrambled content and the storage information;

a list extraction step for extracting the list of descrambling keys from the stored storage information;

a descramble processing step for descrambling the scrambled content; and (a) extracting the predetermined unit of scrambled content from the stored scrambled content sequentially if in the normal reproduction mode to obtain a first group of scrambled content made of a plurality of portions of the scrambled content, or to obtain a second group of scrambled content made of a particularity of portions of the scrambled content in an order different from the normal reproduction mode if in the particular reproduction mode (b) i) in the normal reproduction mode, specifying and extracting, using the descrambling key identifiers, the first



30 group of descrambling keys and descrambling each portion of the scrambled content in the first  
group of scrambled content with use of a corresponding one of the first group of descrambling  
keys thereby obtaining a first group of content made of a plurality of portions of content, and ii)  
in the particular reproduction mode, specifying and extracting, using the descrambling key  
identifiers, the second group of descrambling keys and descrambling each portion of the  
35 scramble content in the second group of scrambled content with use of a corresponding one of  
the second group of descrambling keys thereby obtaining a second group of content made of a  
plurality of portion of content

a reproduction step for reproducing the first group of content in the normal  
reproduction mode and reproducing the second group of content in the particular reproduction  
40 mode, descrambled content, wherein

the normal reproduction mode is a mode which includes a play mode and in  
which all of the frames are descrambled and reproduced sequentially,

the particular reproduction mode is a mode which includes a fast-play mode and  
in which only predetermined frames selectively extracted from less than all of the frames are  
45 descrambled and reproduced, and

(a) in the normal reproduction mode,

said list extraction step extracts all descrambling keys from the list of  
descrambling keys,

said descramble processing step descrambles each frame of all of the frames using  
50 each of the extracted descrambling keys, and

said reproduction step reproduces the all frames descrambled by said  
descrambling means, and

(b) in the particular reproduction mode,

said list extraction step selectively extracts descrambling keys corresponding to

55 the predetermined frames from the list of descrambling keys,

said descramble processing step descrambles each of the predetermined frames  
using the extracted descrambling keys, and

said reproduction means reproduces only the predetermined frames descrambled  
by said descrambling means so that the content is reproduced in a different speed than a speed of  
60 reproduction of the normal reproduction mode.

32. (Currently Amended) A method for receiving and reproducing scrambled content, the method comprising ~~the steps of:~~

a reception step for receiving the scrambled content, wherein the scrambled content is ~~scrambled so that a predetermined unit of scrambled content, which is a portion of the~~  
5 ~~scrambled content, is descrambled using a descrambling key corresponding to the predetermined unit of scrambled content, and a descrambling key is attached to each predetermined unit a~~  
content which has been scrambled in units of frames so that the frames can be descrambled using  
descrambling keys that respectively correspond to each of the frames, and the descrambling keys  
are attached to the frames of scrambled content;

10 a storage step for storing the received scrambled content;

a list generation step for, when/after storing the received scrambled content in the storage step, generating a list of descrambling keys ~~including all descrambling keys to be used~~  
~~for descrambling the scrambled content and descrambling key identifiers that identify the~~  
~~descrambling keys respectively and are used to identify a descrambling key corresponding to the~~

15 predetermined unit of scrambled content in both a normal reproduction mode that includes a play mode, and a particular reproduction mode that includes a fast forward mode, based on the descrambling key attached to each predetermined unit which includes all of the descrambling keys attached to each frame of the scrambled content;

from the list of descrambling keys, a first group of descrambling keys being  
20 extracted in the normal reproduction mode, and a second group of descrambling keys being extracted in the particular reproduction mode;

a list extraction step for extracting the list of descrambling keys from the stored storage information;

a descramble processing step for descrambling the scrambled content; (a)  
25 extracting the predetermined unit of scrambled content from the stored scrambled content sequentially if in the normal reproduction mode to obtain a first group of scrambled content made of a plurality of portions of the scrambled content, or to obtain a second group of scramble content made of a plurality of portions of the scrambled content in an order different from the normal reproduction mode if in the particular reproduction mode (b) i) in the normal  
30 reproduction mode, specifying and extracting, using the descrambling key identifiers, the first group of descrambling keys and descrambling each portion of the scrambled content in the first group of scrambled content with use of a corresponding one of the first group of descrambling keys thereby obtaining a first group of content made of a plurality of portions of content, and ii) in the particular reproduction mode, specifying and extracting, using the descrambling key  
35 identifiers, the second group of descrambling keys and descrambling each portion of the scramble content in the second group of scrambled content with use of a corresponding one of

the second group of descrambling keys thereby obtaining a second group of content made of a plurality of portions of content; and

40 a reproduction step for reproducing the descrambled content, wherein first group of content in the normal reproduction mode and reproducing the second group of content in the particular reproduction mode.

the normal reproduction mode is a mode which includes a play mode and in which all of the frames are descrambled and reproduced sequentially.

45 the particular reproduction mode is a mode which includes a fast-play mode and in which only predetermined frames selectively extracted from less than all of the frames are descrambled and reproduced, and

(a) in the normal reproduction mode,

said list extraction step extracts all descrambling keys from the list of descrambling keys.

50 said descramble processing step descrambles each frame of all of the frames using each of the extracted descrambling keys, and

said reproduction step reproduces all of the frames descrambled by said descrambling step, and

(b) in the particular reproduction mode,

55 said list extraction step selectively extracts descrambling keys corresponding to the predetermined frames from the list of descrambling keys.

said descramble processing step descrambles each of the predetermined frames using the extracted descrambling keys, and

said reproduction step reproduces the predetermined frames descrambled by said  
60 descrambling step at a speed of reproduction that is different than a speed of reproduction of the  
normal reproduction mode.

33. (Currently Amended) A method for scrambling content and broadcasting the  
scrambled content to a reception apparatus, the method comprising ~~the steps of:~~

an acquisition step for acquiring content to be scrambled and a plurality of  
descrambling keys;

5 a scramble processing step for ~~serambling a predetermined unit of content out of~~  
~~the acquired content so that the predetermined unit of scrambled content is descrambled using a~~  
~~descrambling key different for each predetermined unit or each set of a plurality of~~  
~~predetermined units~~ selecting one of the descrambling keys for each frame of the content, and  
scrambling the each frame so that the frame can be descrambled by using the descrambling key  
10 selected for the frame;

an attaching step for attaching auxiliary information, ~~to the predetermined unit of~~  
~~serambled content, the auxiliary information consisting of which~~ is used to generate a list of the  
descrambling keys, wherein the auxiliary information includes (a) information for identifying  
each of the serambled content frames and (b) a descrambling key corresponding to the content,  
15 and used for having the reception apparatus generate a list of descrambling keys including the  
descrambling keys and descrambling key identifiers that identify the descrambling keys  
respectively and are used to identify a descrambling key corresponding to the predetermined unit  
of serambled content in both a normal reproduction mode that includes a play mode, and a

particular reproduction mode that includes a fast forward mode, each of the descrambling keys  
20 selected for the frame; and

~~from the list of descrambling keys, a first group of descrambling keys being~~  
~~extracted in the normal reproduction mode, and a second group of descrambling keys being~~  
~~extracted in the particular reproduction mode;~~

a broadcast step for broadcasting the scrambled content ~~to which the auxiliary~~  
25 ~~information is added~~ including the plurality of scrambled frames to which the auxiliary  
information has been attached.

34. (Currently Amended) A method for scrambling content and broadcasting the  
scrambled content to a reception apparatus, the method comprising ~~the steps of:~~

an acquisition step for acquiring content to be scrambled and a plurality of  
descrambling keys;

5 a scramble processing step for selecting one of the descrambling keys for each  
frame of the content, and scrambling the each frame so that the frame can be descrambled by  
using the descrambling key selected for the frame;

a list generation step for generating a list of descrambling keys ~~including the~~  
~~descrambling keys and descrambling key identifiers that identify the descrambling keys~~  
10 ~~respectively and are used to identify a descrambling key corresponding to the predetermined unit~~  
~~of scrambled content in both a normal reproduction mode that includes a play mode, and a~~  
~~particular reproduction mode that includes a fast forward mode, which includes all of the~~  
descrambling keys selected by the scramble processing step;

from the list of descrambling keys, a first group of descrambling keys being  
15 extracted in the normal reproduction mode, and a second group of descrambling keys being  
extracted in the particular reproduction mode;

an embedding step for embedding the list of descrambling keys in at least one  
piece of predetermined information to generate at least one piece of storage information; and

a scramble processing step for scrambling a predetermined unit of content out of  
20 the acquired content so that the predetermined unit of scrambled content is descrambled using a  
descrambling key different for each predetermined unit or each set of a plurality of  
predetermined units; and

a broadcast step for broadcasting the generated storage information and the  
scrambled content.